



**UNIVERSIDAD TECNOLÓGICA  
NACIONAL  
FACULTAD REGIONAL  
RESISTENCIA**

**INGENIERÍA EN SISTEMAS DE INFORMACIÓN**

**MATERIA:** SISTEMAS DE GESTIÓN DE BASES DE DATOS

**NIVEL:** 3

**CICLO LECTIVO:** 2024 – 2DO. CUATRIMESTRE

**DOCENTES:**

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# Instalación de MongoDB

Siguiendo el manual de MongoDB, lo instalamos:

```
ubuntu@mv-bd:~$ sudo apt-get install gnupg curl
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
curl ya está en su versión más reciente (7.81.0-1ubuntu1.18).
fijado curl como instalado manualmente.
gnupg ya está en su versión más reciente (2.2.27-3ubuntu2.1).
fijado gnupg como instalado manualmente.
0 actualizados, 0 nuevos se instalarán, 0 para eliminar y 34 no actualizados.
```

```
ubuntu@mv-bd:~$ curl -fsSL https://www.mongodb.org/static/pgp/server-8.0.asc | \
sudo gpg -o /usr/share/keyrings/mongodb-server-8.0.gpg \
--dearmor
```

```
ubuntu@mv-bd:~$ echo "deb [ arch=amd64,arm64 signed-by=/usr/share/keyrings/mongodb-server-8.0.gpg ] https://repo.mongodb.org/apt/ubuntu jammy/mongodb-org/8.0 multiverse" | sudo tee /etc/apt/sources.list.d/mongodb-org-8.0.list
deb [ arch=amd64,arm64 signed-by=/usr/share/keyrings/mongodb-server-8.0.gpg ] https://repo.mongodb.org/apt/ubuntu jammy/mongodb-org/8.0 multiverse
ubuntu@mv-bd:~$ sudo apt-get update
Obj:1 http://repo.mysql.com/apt/ubuntu jammy InRelease
Ign:2 https://repo.mongodb.org/apt/ubuntu jammy/mongodb-org/8.0 InRelease
Obj:3 http://archive.ubuntu.com/ubuntu jammy InRelease
Des:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
```

```
ubuntu@mv-bd:~$ sudo apt-get install -y mongodb-org
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias... Hecho
Leyendo la información de estado... Hecho
Se instalarán los siguientes paquetes adicionales:
```

```
ubuntu@mv-bd:~$ sudo systemctl start mongod
ubuntu@mv-bd:~$ sudo systemctl status mongod
● mongod.service - MongoDB Database Server
   Loaded: loaded (/lib/systemd/system/mongod.service; disabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-10-31 13:35:04 UTC; 36s ago
     Docs: https://docs.mongodb.org/manual
    Main PID: 1454 (mongod)
      Memory: 179.9M
         CPU: 376ms
    CGroup: /system.slice/mongod.service
            └─1454 /usr/bin/mongod --config /etc/mongod.conf

oct 31 13:35:04 mv-bd systemd[1]: Started MongoDB Database Server.
```

```
ubuntu@mv-bd:~$ sudo systemctl stop mongod
ubuntu@mv-bd:~$ sudo systemctl restart mongod
ubuntu@mv-bd:~$ mongosh
```

```

The server generated these startup warnings when booting
2024-10-31T13:37:06.608+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See
http://dochub.mongodb.org/core/prodnotes-filesystem
2024-10-31T13:37:07.064+00:00: Access control is not enabled for the database. Read and write access to data and configuration
is unrestricted
2024-10-31T13:37:07.064+00:00: For customers running the current memory allocator, we suggest changing the contents of
the following sysfsFile
2024-10-31T13:37:07.064+00:00: For customers running the current memory allocator, we suggest changing the contents of
the following sysfsFile
2024-10-31T13:37:07.064+00:00: We suggest setting the contents of sysfsFile to 0.
2024-10-31T13:37:07.064+00:00: vm.max_map_count is too low

test> |

```

Ahora que tenemos instalado MongoDB podemos hacer las consultas.

## Realizar por terminal de comandos los siguientes ejercicios

1) Insertar los documentos de películas provistos en los archivos customers.json, films.json y stores.json en la base de datos “Mongodb2024”, en las colecciones “clientes”, “películas” y “tiendas” respectivamente. Utilizar la herramienta mongoimport.

Consulta:

```
mongoimport -d=Mongodb2024 -c=clientes customers.json
```

```
mongoimport -d=Mongodb2024 -c=tiendas stores.json
```

```
mongoimport -d=Mongodb2024 -c=peliculas films.json
```

```

ubuntu@mv-bd:~/homer/Sakila json$ mongoimport -d=Mongodb2024 -c=clientes customers.json
2024-10-31T13:59:37.182+0000 connected to: mongodb://localhost/
2024-10-31T13:59:37.420+0000 599 document(s) imported successfully. 0 document(s) failed to import.
ubuntu@mv-bd:~/homer/Sakila json$ mongoimport -d=Mongodb2024 -c=tiendas stores.json
2024-10-31T14:00:24.165+0000 connected to: mongodb://localhost/
2024-10-31T14:00:24.216+0000 2 document(s) imported successfully. 0 document(s) failed to import.
ubuntu@mv-bd:~/homer/Sakila json$ mongoimport -d=Mongodb2024 -c=peliculas films.json
2024-10-31T14:00:41.179+0000 connected to: mongodb://localhost/
2024-10-31T14:00:41.290+0000 1000 document(s) imported successfully. 0 document(s) failed to import.

```

Podemos visualizar que la base de datos fue creada correctamente.

```

test> show dbs
Mongodb2024 1.63 MiB
admin        40.00 KiB
config       72.00 KiB
local        72.00 KiB
test> |

```

```

test> use Mongodb2024
switched to db Mongodb2024
Mongodb2024> show collections
clientes
peliculas
tiendas
Mongodb2024> |

```

2. Listar los títulos (Title) de todas las películas.

Consulta:

```
db.peliculas.find({}, {Title:1, _id:0})
```

```
Mongodb2024> db.peliculas.find({}, {Title:1, _id:0})
[
  { Title: 'ACADEMY DINOSAUR' },
  { Title: 'ADAPTATION HOLES' },
  { Title: 'AFFAIR PREJUDICE' },
  { Title: 'AFRICAN EGG' },
  { Title: 'AGENT TRUMAN' },
  { Title: 'AIRPLANE SIERRA' },
  { Title: 'AIRPORT POLLOCK' },
  { Title: 'ALABAMA DEVIL' },
  { Title: 'ALADDIN CALENDAR' },
  { Title: 'ALAMO VIDEOTAPE' },
  { Title: 'ALASKA PHANTOM' },
  { Title: 'ALI FOREVER' },
  { Title: 'ALICE FANTASIA' },
  { Title: 'ALIEN CENTER' },
  { Title: 'ALLEY EVOLUTION' },
  { Title: 'ALONE TRIP' },
  { Title: 'ACE GOLDFINGER' },
  { Title: 'AMADEUS HOLY' },
  { Title: 'AMELIE HELLFIGHTERS' },
  { Title: 'ALTER VICTORY' }
]
Type "it" for more
Mongodb2024> |
```

3. Listar los nombres y apellidos (First name, Last name) de los actores de la película "AGENT TRUMAN".

Consulta:

```
db.peliculas.find( { Title: "AGENT TRUMAN" },
  { "Actors.First name": 1, "Actors.Last name": 1, _id: 0 })
```

```
Mongodb2024> db.peliculas.find({ Title: "AGENT TRUMAN" }, { "Actors.First name": 1, "Actors.Last name": 1, _id: 0 })
[
  {
    Actors: [
      { 'First name': 'KIRSTEN', 'Last name': 'PALTROW' },
      { 'First name': 'SANDRA', 'Last name': 'KILMER' },
      { 'First name': 'JAYNE', 'Last name': 'NEESON' },
      { 'First name': 'WARREN', 'Last name': 'NOLTE' },
      { 'First name': 'MORGAN', 'Last name': 'WILLIAMS' },
      { 'First name': 'KENNETH', 'Last name': 'HOFFMAN' },
      { 'First name': 'REESE', 'Last name': 'WEST' }
    ]
  }
]
Mongodb2024> |
```

4. Listar todos los campos de la película "AGENT TRUMAN", excepto los actores.

Consulta:

```
db.peliculas.find({Title:"AGENT TRUMAN"},{Actors:0})
```

```
Mongodb2024> db.peliculas.find({Title:"AGENT TRUMAN"},{Actors:0})
[
  {
    _id: 6,
    Category: 'Foreign',
    Description: 'A Intrepid Panorama of a Robot And a Boy who must Escape a Sumo Wrestler in Ancient China',
    Length: 169,
    Rating: 'PG',
    'Rental Duration': 3,
    'Replacement Cost': 17.99,
    'Special Features': 'Deleted Scenes',
    Title: 'AGENT TRUMAN'
  }
]
Mongodb2024> |
```

5. Listar los títulos (Title) y las categorías (Category) de todas las películas, ordenados por categoría en forma descendente

Consulta:

```
db.peliculas.find({}, { Title: 1, Category: 1, _id: 0 }).sort({ Category: -1 })
```

```
Mongodb2024> db.peliculas.find({}, { Title: 1, Category: 1, _id: 0 }).sort({ Category: -1 })
[
  { Category: 'Travel', Title: 'FUGITIVE MAGUIRE' },
  { Category: 'Travel', Title: 'BUCKET BROTHERHOOD' },
  { Category: 'Travel', Title: 'FACTORY DRAGON' },
  { Category: 'Travel', Title: 'FELLOWSHIP AUTUMN' },
  { Category: 'Travel', Title: 'TEEN APOLLO' },
  { Category: 'Travel', Title: 'SWEET BROTHERHOOD' },
  { Category: 'Travel', Title: 'SUPERFLY TRIP' },
  { Category: 'Travel', Title: 'BORN SPINAL' },
  { Category: 'Travel', Title: 'BOONDOCK BALLROOM' },
  { Category: 'Travel', Title: 'BOILED DARES' },
  { Category: 'Travel', Title: 'FROGMEN BREAKING' },
  { Category: 'Travel', Title: 'EXPECATIONS NATURAL' },
  { Category: 'Travel', Title: 'WINDOW SIDE' },
  { Category: 'Travel', Title: 'GAMES BOWFINGER' },
  { Category: 'Travel', Title: 'BIRD INDEPENDENCE' },
  { Category: 'Travel', Title: 'STONE FIRE' },
  { Category: 'Travel', Title: 'WOLVES DESIRE' },
  { Category: 'Travel', Title: 'GUMP DATE' },
  { Category: 'Travel', Title: 'BASIC EASY' },
  { Category: 'Travel', Title: 'HAUNTED ANTITRUST' }
]
```

6. Listar el título (Title) y los nombres y apellidos (First name, Last name) de los actores de todas las películas de terror (Category : “Horror”).

Consulta:

```
db.peliculas.find({Category:"Horror"},
  {Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
```

```
Mongodb2024> db.peliculas.find({Category:"Horror"},{Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
[
  {
    Actors: [
      { 'First name': 'JODIE', 'Last name': 'DEGENERES' },
      { 'First name': 'SCARLETT', 'Last name': 'DAMON' },
      { 'First name': 'KENNETH', 'Last name': 'PESCI' },
      { 'First name': 'FAY', 'Last name': 'WINSLET' },
      { 'First name': 'OPRAH', 'Last name': 'KILMER' }
    ],
    Title: 'AFFAIR PREJUDICE'
  },
  {
    Actors: [
      { 'First name': 'FAY', 'Last name': 'KILMER' },
      { 'First name': 'GENE', 'Last name': 'WILLIS' },
      { 'First name': 'SUSAN', 'Last name': 'DAVIS' },
      { 'First name': 'LUCILLE', 'Last name': 'DEE' }
    ],
    Title: 'AIRPORT POLLOCK'
  },
  {
    Actors: [
```

7. Listar el título (Title) y los nombres y apellidos (First name, Last name) de los actores de las películas que tengan exactamente cuatro actores.

Consulta:

```
db.peliculas.find({"Actors":{"$size":4}},
  {Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
```

```
Mongodb2024> db.peliculas.find({"Actors":{"$size:4"}},{Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
[
  {
    Actors: [
      { 'First name': 'FAY', 'Last name': 'KILMER' },
      { 'First name': 'GENE', 'Last name': 'WILLIS' },
      { 'First name': 'SUSAN', 'Last name': 'DAVIS' },
      { 'First name': 'LUCILLE', 'Last name': 'DEE' }
    ],
    Title: 'AIRPORT POLLOCK'
  },
  {
    Actors: [
      { 'First name': 'JOHNNY', 'Last name': 'CAGE' },
      { 'First name': 'SCARLETT', 'Last name': 'DAMON' },
      { 'First name': 'SEAN', 'Last name': 'GUINNESS' },
      { 'First name': 'MICHAEL', 'Last name': 'BENING' }
    ],
    Title: 'ALAMO VIDEOTAPE'
  },
  {
    Actors: [
      { 'First name': 'WOODY', 'Last name': 'HOFFMAN' },
      { 'First name': 'MINNIE', 'Last name': 'ZELLWEGER' },
      { 'First name': 'MORGAN', 'Last name': 'WILLIAMS' },
      { 'First name': 'ROCK', 'Last name': 'DUKAKIS' }
    ],
    Title: 'ALICE FANTASIA'
  }
]
```

8. Mostrar el título (Title) y los nombres y apellidos (First name, Last name) de los actores de una película que tenga exactamente cuatro actores.

Consulta:

```
db.peliculas.findOne({"Actors":{"$size:4"}},
  {"Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
```

```
Mongodb2024> db.peliculas.findOne({"Actors":{"$size:4"}},{Title:1,"Actors.First name":1,"Actors.Last name":1,_id:0})
{
  Actors: [
    { 'First name': 'FAY' },
    { 'First name': 'GENE' },
    { 'First name': 'SUSAN' },
    { 'First name': 'LUCILLE' }
  ],
  Title: 'AIRPORT POLLOCK'
}
```

9. Listar los títulos (Title) y la descripción (Description) de las películas que en su descripción tengan la palabra “Panorama”.

Consulta:

```
db.peliculas.find({"$where":"this.Description &&
  this.Description.includes('Panorama')"},{Title:1,Description:1,_id:0})
```

```
Mongodb2024> db.peliculas.find({$where:"this.Description && this.Description.includes('Panorama')"},{Title:1,Description:1,_id:0})
[
  {
    Description: 'A Intrepid Panorama of a Robot And a Boy who must Escape a Sumo Wrestler in Ancient China',
    Title: 'AGENT TRUMAN'
  },
  {
    Description: 'A Thoughtful Panorama of a Database Administrator And a Mad Scientist who must Outgun a Mad Scientist in A Jet Boat',
    Title: 'ALABAMA DEVIL'
  },
  {
    Description: 'A Amazing Panorama of a Pastry Chef And a Boat who must Escape a Woman in An Abandoned Amusement Park',
    Title: 'ANNIE IDENTITY'
  },
  {
    Description: 'A Touching Panorama of a Waitress And a Woman who must Outrace a Dog in An Abandoned Amusement Park',
    Title: 'ARMAGEDDON LOST'
  }
]
```

10. Encontrar las películas que tengan una duración (Length) entre 50 y 100 minutos.

Consulta:

```
db.peliculas.find({Length:{$gte:50,$lte:100}},
{Title:1,Length:1,_id:0})
```

```
Mongodb2024> db.peliculas.find({Length:{$gte:50,$lte:100}},{Title:1,Length:1,_id:0})
[
  { Length: 86, Title: 'ACADEMY DINOSAUR' },
  { Length: 50, Title: 'ADAPTATION HOLES' },
  { Length: 62, Title: 'AIRPLANE SIERRA' },
  { Length: 54, Title: 'AIRPORT POLLOCK' },
  { Length: 63, Title: 'ALADDIN CALENDAR' },
  { Length: 94, Title: 'ALICE FANTASIA' },
  { Length: 82, Title: 'ALONE TRIP' },
  { Length: 79, Title: 'AMELIE HELLFIGHTERS' },
  { Length: 57, Title: 'ALTER VICTORY' },
  { Length: 85, Title: 'AMISTAD MIDSUMMER' },
  { Length: 92, Title: 'ANACONDA CONFESSIONS' },
  { Length: 74, Title: 'ANGELS LIFE' },
  { Length: 86, Title: 'ANNIE IDENTITY' },
  { Length: 91, Title: 'ANTHEM LUKE' },
  { Length: 82, Title: 'ANYTHING SAVANNAH' },
  { Length: 92, Title: 'APACHE DIVINE' },
  { Length: 62, Title: 'ARABIA DOGMA' },
  { Length: 68, Title: 'ARK RIDGEMONT' },
  { Length: 99, Title: 'ARMAGEDDON LOST' },
  { Length: 83, Title: 'ATTRACTION NEWTON' }
]
Type "it" for more
Mongodb2024> |
```

11. Mostrar título (Title), descripción (Description), duración (Length) y características especiales (Special Features) de las películas que tengan “detrás de escena” (“Behind the Scenes”) entre sus características especiales.

Consulta:

```
db.peliculas.find({ "Special Features": "Behind the Scenes" }, { Title:
1, Description: 1, Length: 1, "Special Features": 1, _id: 0 })
```



```
Mongodb2024> db.peliculas.find({"Special Features": "Behind the Scenes"}, { Title: 1, Description: 1, Length: 1, "Special Features": 1, _id: 0 })
[
  {
    Description: 'A Thrilling Yarn of a Feminist And a Hunter who must Fight a Technical Writer in A Shark Tank',
    Length: 170,
    'Special Features': 'Behind the Scenes',
    Title: 'ATLANTIS CAUSE'
  },
  {
    Description: 'A Awe-Inspiring Story of a Feminist And a Cat who must Conquer a Dog in A Monastery',
    Length: 65,
    'Special Features': 'Behind the Scenes',
    Title: 'BARBARELLA STREETCAR'
  },
  {
    Description: 'A Fateful Panorama of a Crocodile And a Boy who must Defeat a Monkey in The Gulf of Mexico',
    Length: 76,
    'Special Features': 'Behind the Scenes',
    Title: 'BOONDOCK BALLROOM'
  },
]
```

12. Mostrar título (Title), descripción (Description), duración (Length) y características especiales (Special Features) de las películas que tengan un costo de reposición (Replacement Cost) mayor a 20.

Consulta:

```
db.peliculas.find({"Replacement Cost": {$gt:20}},
  {Title:1,Description:1,"Special Features":1,_id:0,"Replacement Cost":1})
```

```
Mongodb2024> db.peliculas.find({"Replacement Cost": {$gt:20}}, {Title:1,Description:1,"Special Features":1,_id:0,"Replacement Cost":1})
[
  {
    Description: 'A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher in The Canadian Rockies',
    'Replacement Cost': 20.99,
    'Special Features': 'Deleted Scenes,Behind the Scenes',
    Title: 'ACADEMY DINOSAUR'
  },
  {
    Description: 'A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monkey in A Shark Tank',
    'Replacement Cost': 26.99,
    'Special Features': 'Commentaries,Behind the Scenes',
    Title: 'AFFAIR PREJUDICE'
  },
  {
    Description: 'A Fast-Paced Documentary of a Pastry Chef And a Dentist who must Pursue a Forensic Psychologist in The Gulf of Mexico',
    'Replacement Cost': 22.99,
    'Special Features': 'Deleted Scenes',
    Title: 'AFRICAN EGG'
  },
]
```

13. Mostrar los datos de las películas (menos sus actores) que no son comedias (Category : “Comedy”)

Consulta:

```
db.peliculas.find({Category:{$ne:"Comedy"}},{Actors:0})
```

```
Mongodb2024> db.peliculas.find({Category:{$ne:"Comedy"}},{Actors:0})
[
  {
    _id: 1,
    Category: 'Documentary',
    Description: 'A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher i
n The Canadian Rockies',
    Length: 86,
    Rating: 'PG',
    'Rental Duration': 6,
    'Replacement Cost': 20.99,
    'Special Features': 'Deleted Scenes,Behind the Scenes',
    Title: 'ACADEMY DINOSAUR'
  },
  {
    _id: 3,
    Category: 'Documentary',
    Description: 'A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberja
ck in A Baloon Factory',
    Length: 50,
    Rating: 'NC-17',
    'Rental Duration': 7,
    'Replacement Cost': 18.99,
    'Special Features': 'Trailers,Deleted Scenes',
    Title: 'ADAPTATION HOLES'
  },
  {
    _id: 4,
    Category: 'Horror',
    Description: 'A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monk
```

14. Mostrar la cantidad de películas de terror (Category : “Horror”).

Consulta:

```
db.peliculas.countDocuments({Category:"Horror"})
```

```
Mongodb2024> db.peliculas.countDocuments({Category:"Horror"})
56
Mongodb2024>
```

15. Listar las películas en las que participen actores de apellido (Last name) “KILMER”.

Consulta:

```
db.peliculas.find({ "Actors.Last name": "KILMER" },
{ Title: 1, _id: 0 })
```

```
Mongodb2024> db.peliculas.find({ "Actors.Last name": "KILMER" }, { Title: 1, _id: 0 })
[
  { Title: 'ACADEMY DINOSAUR' },
  { Title: 'AFFAIR PREJUDICE' },
  { Title: 'AGENT TRUMAN' },
  { Title: 'AIRPLANE SIERRA' },
  { Title: 'AIRPORT POLLOCK' },
  { Title: 'ALTER VICTORY' },
  { Title: 'ANONYMOUS HUMAN' },
  { Title: 'ANTHEM LUKE' },
  { Title: 'APOCALYPSE FLAMINGOS' },
  { Title: 'APOLLO TEEN' },
  { Title: 'ARSENIC INDEPENDENCE' },
  { Title: 'BABY HALL' },
  { Title: 'ARTIST COLDBLOODED' },
  { Title: 'BEETHOVEN EXORCIST' },
  { Title: 'BEHAVIOR RUNAWAY' },
  { Title: 'BIRD INDEPENDENCE' },
  { Title: 'BLACKOUT PRIVATE' },
  { Title: 'BONNIE HOLOCAUST' },
  { Title: 'BULL SHAWSHANK' },
  { Title: 'CAMPUS REMEMBER' }
]
```

16. Mostrar la cantidad de películas en las que actuó “OPRAH KILMER”.

Consulta:

```
db.peliculas.countDocuments(  
  { "Actors.First name": "OPRAH", "Actors.Last name": "KILMER" });
```

```
Mongodb2024> db.peliculas.countDocuments( { "Actors.First name": "OPRAH", "Actors.Last name": "KILMER" });  
25  
Mongodb2024> |
```

17. Mostrar las películas en las que actúan juntos “OPRAH KILMER” y “MENA HOPPER”.

Consulta:

```
db.peliculas.find({Actors: {$all: [  
  { $elemMatch: { "First name": "OPRAH", "Last name":  
"KILMER" } },  
  { $elemMatch: { "First name": "MENA", "Last name":  
"HOPPER" } } ]}  
},{ Title: 1, _id: 0 });
```

```
Mongodb2024> db.peliculas.find({Actors: {$all: [{ $elemMatch: { "First name": "OPRAH", "Last name": "KILMER" } }, { $elemMatch: { "First name": "MENA", "Last name": "HOPPER" } } ]}}, { Title: 1, _id: 0 });  
[ { Title: 'AIRPLANE SIERRA' }, { Title: 'APOLLO TEEN' } ]  
Mongodb2024> |
```

18. Cargue los datos de cada uno de los integrantes del grupo como clientes.

Consulta:

```
db.clientes.insertMany([  
  { _id: ObjectId(),  
    Address: "CALLE 222",  
    City: "Resistencia",  
    Country: "Argentina",
```

District: "Centro",  
"First Name": "MAURICIO",  
"Last Name": "SCHEFER",  
Phone: "3624111111",  
Rentals: [],  
{\_id: ObjectId(),  
Address: "CALLE 223",  
City: "Resistencia",  
Country: "Argentina",  
District: "Norte",  
"First Name": "AGUSTIN",  
"Last Name": "ARDUÑA",  
Phone: "3624111112",  
Rentals: [],  
{\_id: ObjectId(),  
Address: "CALLE 224",  
City: "Resistencia",  
Country: "Argentina",  
District: "Sur",  
"First Name": "FACUNDO",  
"Last Name": "FERNANDEZ",  
Phone: "3624111113",  
Rentals: [],  
{\_id: ObjectId(),  
Address: "CALLE 224",  
City: "Resistencia",  
Country: "Argentina",

District: "Sur",  
"First Name": "JUAN IGNACIO",  
"Last Name": "VELAZCO",  
Phone: "3624111114",  
Rentals: [],  
{\_id: ObjectId(),  
Address: "CALLE 225",  
City: "Resistencia",  
Country: "Argentina",  
District: "Norte",  
"First Name": "SANTIAGO",  
"Last Name": "BERON",  
Phone: "3624111115",  
Rentals: [],  
{\_id: ObjectId(),  
Address: "CALLE 226",  
City: "Resistencia",  
Country: "Argentina",  
District: "Este",  
"First Name": "VICTOR FABRICIO",  
"Last Name": "KINWEILER",  
Phone: "3624111116",  
Rentals: []  
});

```

{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('67243d2099a2eaae07c1c18c'),
    '1': ObjectId('67243d2099a2eaae07c1c18d'),
    '2': ObjectId('67243d2099a2eaae07c1c18e'),
    '3': ObjectId('67243d2099a2eaae07c1c18f'),
    '4': ObjectId('67243d2099a2eaae07c1c190'),
    '5': ObjectId('67243d2099a2eaae07c1c191')
  }
}
Mongodb2024>

```

19. Agregue el alquiler de dos películas a cada uno de los clientes cargados en el punto anterior.

Consulta:

```

const clientesNuevos = [
    ObjectId('67243d2099a2eaae07c1c18c'),
    ObjectId('67243d2099a2eaae07c1c18d'),
    ObjectId('67243d2099a2eaae07c1c18e'),
    ObjectId('67243d2099a2eaae07c1c18f'),
    ObjectId('67243d2099a2eaae07c1c190'),
    ObjectId('67243d2099a2eaae07c1c191')
];

const peliculasRentadas = [
    {
        "Film Title": " ALTER VICTORY",
        "Rental Date": new Date(),
        "filmId": 18
    },
    {
        "Film Title": " AMADEUS HOLY",

```

```

    "Rental Date": new Date(),
    "filmId": 19
  }
];
db.clientes.updateMany(
{ _id: { $in: clientesNuevos } },
{ $push: { Rentals: { $each: peliculasRentadas } } }
);

```

```

{
  acknowledged: true,
  insertedId: null,
  matchedCount: 6,
  modifiedCount: 6,
  upsertedCount: 0
}
Mongodb2024> |

```

20. Incrementar el costo de reposición (Replacement Cost) en 5 unidades para todas las películas. Verificar que se realizaron los cambios.

Consulta:

```
db.peliculas.updateMany({}, { $inc: { "Replacement Cost": 5 } })
```

```

Mongodb2024> db.peliculas.updateMany({}, { $inc: { "Replacement Cost": 5 } })
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1000,
  modifiedCount: 1000,
  upsertedCount: 0
}
Mongodb2024> |

```

21. Actualizar los documentos de las películas cuyo costo de reposición (Replacement Cost) es mayor a 24, agregando un campo “Película cara” con valor true.

Primero vemos las películas que tienen un Replacement Cost >= 24

```
Mongodb2024> db.peliculas.find({'Replacement Cost':{'$gt: 24}},{'_id:0, Actors:0'})
[
  {
    Category: 'Documentary',
    Description: 'A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher i
n The Canadian Rockies',
    Length: 86,
    Rating: 'PG',
    'Rental Duration': 6,
    'Replacement Cost': 30.99,
    'Special Features': 'Deleted Scenes,Behind the Scenes',
    Title: 'ACADEMY DINOSAUR'
  },
  {
    Category: 'Documentary',
    Description: 'A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberja
ck in A Baloon Factory',
    Length: 50,
    Rating: 'NC-17',
    'Rental Duration': 7,
    'Replacement Cost': 28.99,
    'Special Features': 'Trailers,Deleted Scenes',
    Title: 'ADAPTATION HOLES'
  },
  {
    Category: 'Horror',
    Description: 'A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monk
ey in A Shark Tank',
    Length: 117,
    Rating: 'G',
    'Rental Duration': 5,
    'Replacement Cost': 36.989999999999995,
    'Special Features': 'Commentaries,Behind the Scenes',
    Title: 'AFFAIR PREJUDICE'
  },
]
```

Ahora le agregamos “película cara”:

```
Mongodb2024> db.peliculas.updateMany({'Replacement Cost':{'$gt:24}},{'$set':{'Película cara':tr
ue}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 751,
  modifiedCount: 751,
  upsertedCount: 0
}
Mongodb2024>
```

Consulta :

```
db.peliculas.updateMany({"Replacement Cost":{"$gt:24}},{'$set:
{"Película cara":true}})
```

Verificamos si se actualizo:



```
Mongodb2024> db.peliculas.find({'Replacement Cost':{'$gt: 24}},{'_id:0, Actors:0})
[
  {
    Category: 'Documentary',
    Description: 'A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher i
n The Canadian Rockies',
    Length: 86,
    Rating: 'PG',
    'Rental Duration': 6,
    'Replacement Cost': 30.99,
    'Special Features': 'Deleted Scenes,Behind the Scenes',
    Title: 'ACADEMY DINOSAUR',
    'Pelicula cara': true
  },
  {
    Category: 'Documentary',
    Description: 'A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberja
ck in A Baloon Factory',
    Length: 50,
    Rating: 'NC-17',
    'Rental Duration': 7,
    'Replacement Cost': 28.99,
    'Special Features': 'Trailers,Deleted Scenes',
    Title: 'ADAPTATION HOLES',
    'Pelicula cara': true
  },
]
```

Podemos ver que se agrego el campo correctamente

## 22. Agregar el actor “Bruce Lee” a la película "ALASKA PHANTOM".

Consulta:

Primero tenemos que buscar el ultimo actor id y sumarle uno

```
const ultimoId= db.peliculas.aggregate([{$unwind: "$Actors"},{$group:
{_id:null, ultimoId:{$max: "$Actors.actorId"}}}]).toArray()[0].ultimoId +1;
```

Ahora tenemos que agregar el nuevo actor

```
db.peliculas.updateOne({'Title: "ALASKA PHANTOM" },{ $addToSet:
{ Actors: { "First name": "Bruce", "Last name": "Lee", actorId: ultimoId} } });
```

```
Mongodb2024> const ultimoId= db.peliculas.aggregate([{$unwind: "$Actors"},{$group: {_id:null, ulti
ultimoId:{$max: "$Actors.actorId"}}}]).toArray()[0].ultimoId +1;

Mongodb2024> db.peliculas.updateOne({'Title: "ALASKA PHANTOM" },{ $addToSet: { Actors: { "First na
me": "Bruce", "Last name": "Lee", actorId: ultimoId} } });
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

Volvemos a buscar la película para ver si se cargó el actor.

```
Mongodb2024> db.peliculas.find({ Title: "ALASKA PHANTOM" },{Title: 1, Actors: 1, _id: 0 });
[
  {
    Actors: [
      { 'First name': 'VAL', 'Last name': 'BOLGER', actorId: 37 },
      { 'First name': 'BURT', 'Last name': 'POSEY', actorId: 75 },
      { 'First name': 'SIDNEY', 'Last name': 'CROWE', actorId: 105 },
      { 'First name': 'SYLVESTER', 'Last name': 'DERN', actorId: 109 },
      {
        'First name': 'ALBERT',
        'Last name': 'JOHANSSON',
        actorId: 146
      },
      { 'First name': 'GENE', 'Last name': 'MCKELLEN', actorId: 177 },
      {
        'First name': 'JEFF',
        'Last name': 'SILVERSTONE',
        actorId: 180
      },
      { 'First name': 'Bruce', 'Last name': 'Lee', actorId: 201 }
    ],
    Title: 'ALASKA PHANTOM'
  }
]
Mongodb2024>
```

## 23. Borrar la película "ALAMO VIDEOTAPE".

Buscamos la película:

```
Mongodb2024> db.peliculas.find({ Title: "ALAMO VIDEOTAPE" });
[
  {
    _id: 11,
    Actors: [
      { 'First name': 'JOHNNY', 'Last name': 'CAGE', actorId: 40 },
      { 'First name': 'SCARLETT', 'Last name': 'DAMON', actorId: 81 },
      { 'First name': 'SEAN', 'Last name': 'GUINNESS', actorId: 90 },
      { 'First name': 'MICHAEL', 'Last name': 'BENING', actorId: 174 }
    ],
    Category: 'Foreign',
    Description: 'A Boring Epistle of a Butler And a Cat who must Fight a Pastry Chef in A MySQL Convention',
    Length: 126,
    Rating: 'G',
    'Rental Duration': 6,
    'Replacement Cost': 26.99,
    'Special Features': 'Commentaries,Behind the Scenes',
    Title: 'ALAMO VIDEOTAPE',
    'Película cara': true
  }
]
Mongodb2024> |
```

Borramos la película:

Consulta:

```
db.peliculas.deleteOne({ Title: "ALAMO VIDEOTAPE" });
```

```
Mongodb2024> db.peliculas.deleteOne({ Title: "ALAMO VIDEOTAPE" });
{ acknowledged: true, deletedCount: 1 }
Mongodb2024> |
```

Como podemos ver queremos buscar nuevamente la película y no devuelve nada:

```
Mongodb2024> db.peliculas.find({ Title: "ALAMO VIDEOTAPE" });
Mongodb2024> |
```

24. Obtener el promedio de duración de las películas por categoría.

Consulta:

```
db.peliculas.aggregate([{$group: {_id: "$Category", duracionProm: { $avg: "$Length" } }}, {$project: {_id: 0, Category: "$_id", duracionProm: 1}}])
```

```
Mongodb2024> db.peliculas.aggregate([{$group: {_id: "$Category", duracionProm: { $avg: "$Length" } }}, {$project: {_id: 0, Category: "$_id", duracionProm: 1}}])
[
  { duracionProm: 113.6470588235294, Category: 'Music' },
  { duracionProm: 121.63888888888889, Category: 'Foreign' },
  { duracionProm: 111.01515151515152, Category: 'Animation' },
  { duracionProm: 108.19672131147541, Category: 'Sci-Fi' },
  { duracionProm: 112.48214285714286, Category: 'Horror' },
  { duracionProm: 109.8, Category: 'Children' },
  { duracionProm: 114.78260869565217, Category: 'Family' },
  { duracionProm: 111.609375, Category: 'Action' },
  { duracionProm: 111.66666666666667, Category: 'Classics' },
  { duracionProm: 111.12698412698413, Category: 'New' },
  { duracionProm: 127.8360655737705, Category: 'Games' },
  { duracionProm: 128.2027027027027, Category: 'Sports' },
  { duracionProm: 113.3157894736842, Category: 'Travel' },
  { duracionProm: 108.75, Category: 'Documentary' },
  { duracionProm: 120.83870967741936, Category: 'Drama' },
  { duracionProm: 115.82758620689656, Category: 'Comedy' }
]
Mongodb2024> |
```